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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/588,836	08/07/2007	**Johan Hendrik Klootwijk**	US040064US2	4492

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PHILIPS ELECTRONICS NORTH AMERICA CORPORATION
INTELLECTUAL PROPERTY & STANDARDS
370 W. TRIMBLE ROAD MS 91/MG
SAN JOSE, CA 95131

EXAMINER	
HEALY, BRIAN	
ART UNIT	**PAPER NUMBER**
2883	
MAIL DATE	**DELIVERY MODE**
06/03/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/588,836	KLOOTWIJK ET AL.	
	Examiner	Art Unit	
	BRIAN M. HEALY	2883	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,7-12,18 and 19* is/are rejected.

7)☒ Claim(s) *2-6 and 13-17* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *08 August 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *20060808*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1,7-12 and 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Belleville et. al., U.S. Patent Application Publication No. U.S. 2004/0252931A1 in view of either Bardonnie et. al. (IEEE reference) or Klootwijk et. al.(IEEE reference).

2. Belleville et. al. 931' teaches (Figs.1-11) a monolithically integrated optical network comprising: an active layer 71 which can be a bipolar transistor, an optical reflective coupler and waveguide 70,84 formed on insulator and substrate layers 74,75 with the materials being used including Si, Sio2, SiGe, InP and Gaas. The optical waveguide structure can include photonic bandgap structures 30 that can include air, vacuum, inert gas or a material with a low refractive index (See Fig.3). The light signals of Belleville et. al. are detected by a detector (See paragraph 26) and the use of a control system for the device and transistors of Belleville et. al. can be viewed as inherent even though this feature is not expressly shown in the figures. Belleville et. al. does not specifically state that a bipolar transistor can be used in an avalanche condition in order to emit light waves.

3. Both Bardonnie et. al.(Figs.1-9) and Klootwijk et. al.(Figs.1-8) teach that it is well known that bipolar transistors, used in integrated devices, can emit light pulses when operated in an avalanche condition.

4. Since Belleville et. al. 931', Bardonnie et. al. And Klootwijk et. al. are from the same field of endeavor, i.e. integrated optical devices, the purpose of using a bipolar transistor in an avalanche condition in order to emit light pulses, as is taught by either Bardonnie et. al. or Klootwijk et. al., would have been recognized in the pertinent art of Belleville et. al. 931'.

5. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the monolithic integrated optical structure of Belleville et. al. 931' by including having a bipolar transistor used in an avalanche condition, as is taught by either Bardonnie et. al. or Klootwijk et. al., for the purpose of emitting pulsed light in an integrated optical structure.

Allowable Subject Matter

6. Claims 2-6 and 13-17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Neither Belleville et. al., U.S. Patent Application Publication No. U.S. 2004/0252931A1 or Bardonnie et. al. or Klootwijk et. al. (IEEE references), taken singly or in combination with other references neither teaches or suggests the features of the aforementioned claims including the reflective material that blocks photons or passes photons, the ½ wavelength layer, the phonic bandgap structure that has plural porous columns. These features are recited in claims 2-6 and 13-17.

The following references are also cited by the Examiner as being pertinent and/or related art: Lieber et. al., U.S.P. No. 7,211,464 (Figs.1-33E), Atanackovic et. al.,

U.S. Patent Application Publication No. U.S. 2002/0048289A1 (Figs.1-20), Biard et. al., U.S.P. No. 7,065,124 (Figs.1-7) and Nathan et. al., U.S.P. No. 7,026,640 (Figs.1-16).

7. A copy of PTO-1449 will be included in this office action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BRIAN M. HEALY whose telephone number is (571)272-2347. The examiner can normally be reached on M-F 6AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font can be reached on (571)272-2415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/BRIAN M. HEALY/
Primary Examiner
Art Unit 2883

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